

REMARKS

Claims 1-22 and 28-47 are pending in this application. Claims 1-22 and 28-47 are rejected. No new subject matter has been added. Claim 28 has been amended. Claims 1-22 and 28-47 remain pending. Reconsideration of the claims is requested in light of the following remarks.

Claim Rejections – 35 USC § 103**Stam in view of Harley: Claims 1-14 and 40-47**

Claims 1-14 and 40-47 are rejected under 35 USC 103(a) as being unpatentable over Stam et al. (US Application Publication 2002/0047624) ("Stam"), in view of Harley (US Patent No. 6,369,890) ("Harley").

Claim 1 (Amended) recites:

A display system, comprising:

a plurality of Light Emitting Diodes (LEDs) forming a display panel, at least some of the LEDs of the display panel capable of sensing and emitting light; a driving circuit to drive at least some of the LEDs; a sensing circuit to sense light received at some of the LEDs; and a switch coupled with the driving circuit, sensing circuit and some of the LEDs, to switch some of the LEDs from a sense mode to an emit mode.

Stam in view of Harley do not present a *prima facie case of obviousness*. To establish a *prima facie case of obviousness*, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify for combine reference teachings. MPEP 2142.

There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. MPEP 2143.01.

The nature of the problem to be solved in Stam is considerably different than that in the present application. Stam involves a lamp assembly incorporating optical feedback to correct color shift. Stam discusses LEDs for generating white light with either multiple LED dies of different colors that in combination make white light, or an LED of a specific color that has a phosphor of a different color deposited on it that together make white light. The problem Stam is dealing with is different decay rates between the different dies or between the LED die of a specific color and the phosphor. These different decay rates result in a color shift. Stam discusses using a detector on a display to allow a feedback mechanism to adjust

LEDs in response to the color shift. Stam mentions LEDs may be used as a detector and that LEDs can be reverse biased and operated as a photodiode to detect light from other LEDs of the same color. Furthermore, Stam does not even discuss *changing* an LED from sensor/detector to emitter, or vice versa, as it is not relevant to the nature of the problem to be solved. It simply states that an LED can be used in either form, but not both.

Harley involves a particle separation and detection apparatus, having a measuring chamber comprising a cylindrical body housing pairs of diametrically opposed light emitting diodes to direct light towards each other through a sampling volume viewed through an aperture.

The prior art must suggest the desirability of the claimed invention. MPEP 2143.01. Claim 1 includes a switch coupled with the driving circuit, sensing circuit and some of the LEDs, to switch some of the LEDs from a sense mode to an emit mode. The background of the present application states that one problem to be solved is dealing with sensors in different light environments than LEDs in the display. It states even a display with multiple detectors in the display may be insufficient if the detectors, for example, are in shadow while other parts of the display are in ambient light. Therefore the nature of one problem to be solved is to be able to use different LEDs in a display mode and in a detection mode based on changing environmental conditions. This is a different problem than correcting color shift. Therefore the reason Stam would not need switching circuitry is due to the different nature of the problems to be solved between Stam and the current application. This explains why there are no teachings in the prior art, no suggestion or motivation to combine Stam and Harley in the manner described, or in the knowledge of one with ordinary skill in the art. The fact that references can be combined or modified is not sufficient to establish *prima facie* obviousness. MPEP 2143.01.

Also, the fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient to establish *prima facie* obviousness. A statement that modifications of the prior art to meet the claimed invention would have been within the ordinary skill of the art at the time the claimed invention was made because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. MPEP 2143.01. This may be due to Stam being in the display arts while Harley is in particle separation and detection arts, and in particular to detecting oil mist as may arise under fault conditions in internal combustion engines.

It is therefore submitted that claim 1 is patentably distinguishable over the prior art as there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify for combine reference teachings.

Claims 2-14 and 40-45 depend from claim 1. Since dependent claims necessarily contain the limitations of claims from which they depend, it is therefore submitted that claims 2-14 and 40-45 are also patentably distinguishable over the prior art.

Claim 46 includes in part an OLED display comprising *a plurality of diodes located in columns and rows, at least some of the plurality operable in both an emitting and a sensing mode*. Claim 46 is therefore patentably distinguishable over the prior art for the same reasons as claim 1 and its dependents. Claim 47 depends from claim 46. Since dependent claims necessarily contain the limitations of claims from which they depend, it is therefore submitted that claim 47 is also patentably distinguishable over the prior art.

Stam in view of Cok, further in view of Gu: Claims 15-16

Claims 15-16 are rejected under 35 USC 103(a) as being unpatentable over Stam in view of Cok, and further in view of Gu (US Patent Publication No. 2003/0052904) ("Gu").

Cok involves an image display device, having a photosensor located on the display device and optically coupled to a representative light emitting pixel on the display device, and a feedback control circuit connected to the photosensor for modifying the light emitting display. Cok does not teach a switch coupled with a driving circuit, sensing circuit and some LEDs, to switch some of the LEDs from a sense mode to an emit mode.

Gu discusses embedding timing information along with other display control information in a signal using a pulse width modulation mechanism to controllably drive a display. Gu does not teach a switch coupled with a driving circuit, sensing circuit and some LEDs, to switch some of the LEDs from a sense mode to an emit mode. Therefore Stam in view of Cok and further in view of Gu, even in combination, do not teach or suggest all the claim limitations.

It is therefore submitted that claims 15 and 16, since they depend from claim 1, are patentably distinguishable over the prior art.

Stam in view of Cok, further in view of Ogawa: Claims 17-19 and 41

Claims 17-19 and 41 are rejected under 35 USC 103(a) as being unpatentable over Stam in view of Cok et al (US Patent No. 6,320,325) ("Cok"), and further in view of Ogawa (US Patent No. 5,572,251) ("Ogawa").

Cok involves an image display device, having a photosensor located on the display device and optically coupled to a representative light emitting pixel on the display device, and a feedback control circuit connected to the photosensor for modifying the light emitting display. Cok does not teach a switch coupled with a driving circuit, sensing circuit and some LEDs, to switch some of the LEDs from a sense mode to an emit mode.

Ogawa discusses an optical position detecting unit and optical coordinate input unit. Specifically, Ogawa discusses an optical position detecting unit which includes an image pickup device having a pixel array region, an imaging lens for forming an image of a light-emitting point, a converging lens for converging light coming from the light-emitting point image formed by the imaging lens onto the pixel array region, a pattern member having a pattern which contains code information uniquely corresponding to the position of the light-emitting point and disposed on a path of light from the light-emitting point and at a position near the light-emitting point image, and a signal processing unit for extracting information of the position of the light-emitting point by using code information contained in an image of the pattern projected onto the pixel array region of the image pickup device on the basis of image data generated by the image of the projected pattern.

Ogawa does not teach a switch coupled with a driving circuit, sensing circuit and some LEDs, to switch some of the LEDs from a sense mode to an emit mode. Therefore Stam in view of Cok and further in view of Ogawa, even in combination, do not teach or suggest all the claim limitations.

It is therefore submitted that claims 17-19 and 41, since they depend from claim 1, are patentably distinguishable over the prior art.

Stam in view of Cok, further in view of Forrest: Claims 20-22

Claims 20-22 are rejected under 35 USC 103(a) as being unpatentable over Stam in view of Cok, and further in view of Forrest et al. (US Patent Application Publication No. 2003/0213967) ("Forrest").

Cok involves an image display device, having a photosensor located on the display device and optically coupled to a representative light emitting pixel on the display device, and a feedback control circuit connected to the photosensor for modifying the light emitting

display. Cok does not teach a switch coupled with a driving circuit, sensing circuit and some LEDs, to switch some of the LEDs from a sense mode to an emit mode.

Forrest discusses transparent contacts for organic devices. Forrest does not teach a switch coupled with a driving circuit, sensing circuit and some LEDs, to switch some of the LEDs from a sense mode to an emit mode. Therefore Stam in view of Cok and further in view of Forrest, even in combination, do not teach or suggest all the claim limitations.

It is therefore submitted that claims 20-22, since they depend from claim 1, are patentably distinguishable over the prior art.

Stam: Claims 28, 29 and 32-35

Claims 28, 29 and 32-35 are rejected under 35 USC 103(a) as being unpatentable over Stam.

Claim 28 recites, in part, a method comprising: switching at least one diode between generating and sensing light, wherein the at least one diode is both driven in the first portion of the display cycle and senses light energy in the second portion of the display cycle.

It is therefore submitted that claim 28 is patentably distinguishable over the prior art. Claims 29 and 32-35 depend from claim 28. Since dependent claims necessarily contain the limitations of claims from which they depend, claims 29 and 32-35 are patentably distinguishable over the prior art.

Stam in view of Scozzafava: Claims 30 and 31

Claims 30 and 31 are rejected under 35 USC 103(a) as being unpatentable over Stam as applied to claim 28, further in view of Scozzafava et al. (US Patent No. 5,073,446) ("Scozzafava").

Scozzafava discusses a multicolored led lighting method and apparatus. Specifically, Scozzafava discusses systems and methods relating to LED systems capable of generating light, such as for illumination or display purposes wherein light emitting LEDs may be controlled by a processor to alter the brightness and/or color of the generated light by using pulse width modulated signals. Scozzafava does not teach at least one diode being both driven in a first portion of a display cycle and sensing light energy in a second portion of a display cycle. Therefore Scozzafava does not cure the deficiencies of Stam.

It is therefore submitted that claims 30 and 31, since they depend from claim 28, are patentably distinguishable over the prior art.

Stam in view of Gu: Claim 36

Claim 36 is rejected under 35 USC 103(a) as being unpatentable over Stam as applied to claim 28, and further in view of Gu.

Gu discusses embedding timing information along with other display control information in a signal using a pulse width modulation mechanism to controllably drive a display. Gu does not teach at least one diode being both driven in a first portion of a display cycle and sensing light energy in a second portion of a display cycle. Therefore Gu does not cure the deficiencies of Stam.

It is therefore submitted that claim 36, since it depends from claim 28, is patentably distinguishable over the prior art.

Stam in view of Ogawa: Claim 37-39

Claims 37-39 are rejected under 35 USC 103(a) as being unpatentable over Stam as applied to claim 28, and further in view of Ogawa.

Ogawa discusses an optical position detecting unit and optical coordinate input unit. Specifically, Ogawa discusses an optical position detecting unit which includes an image pickup device having a pixel array region, an imaging lens for forming an image of a light-emitting point, a converging lens for converging light coming from the light-emitting point image formed by the imaging lens onto the pixel array region, a pattern member having a pattern which contains code information uniquely corresponding to the position of the light-emitting point and disposed on a path of light from the light-emitting point and at a position near the light-emitting point image, and a signal processing unit for extracting information of the position of the light-emitting point by using code information contained in an image of the pattern projected onto the pixel array region of the image pickup device on the basis of image data generated by the image of the projected pattern.

Ogawa does not teach at least one diode being both driven in a first portion of a display cycle and sensing light energy in a second portion of a display cycle. Therefore Ogawa does not cure the deficiencies of Stam.

It is therefore submitted that claims 37-39, since they depend from claim 28, are patentably distinguishable over the prior art.

Stam in view of Harley, and further in view of Cok: Claims 40-44

Claims 40-44 are rejected under 35 USC 103(a) as being unpatentable over Stam in view of Harley as applied to claim 1, and further in view of Cok.

Cok involves an image display device, having a photosensor located on the display device and optically coupled to a representative light emitting pixel on the display device, and a feedback control circuit connected to the photosensor for modifying the light emitting display. Cok does not teach a switch coupled with a driving circuit, sensing circuit and some LEDs, to switch some of the LEDs from a sense mode to an emit mode.

Therefore Stam in view of Harley and further in view of Cok, even in combination, do not teach or suggest all the claim limitations.

CONCLUSION

For the foregoing reasons, reconsideration and allowance of claims 1-22 and 28-47 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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